

Stormwater MasterPlan Introduction

The information in this report was compiled for use in identifying and monitoring the City's Capital Improvement Program (CIP). The City receives drainage complaints related to water quality, poor drainage, flooding, stream protection, and other environmental impacts. The complaints are investigated, prioritized, and incorporated into the CIP, if warranted. This report provides maps of the project locations, lists of CIP projects, and project information sheets detailing specific information on each project. It is important to recognize that many projects are in the preliminary planning stages, and therefore estimates pertaining to costs and schedules are planning level estimate only. Project schedules and costs are subject to the availability of funding and bonding capabilities by the Marion County Stormwater Management District, the therefore, subject to change without prior notice.

As projects progress through their life cycles, the information will be updated and provided for review. The goal is to make this report as accurate, up to date, and helpful as possible and, in the process, make the City's CIP as effective as possible.

1.2 Introduction

In 1994, the City of Indianapolis developed a watershed masterplan, prioritizing the needs in each watershed of the city. In 1998, the City of Indianapolis commissioned a stormwater masterplan to help identify a project-by-project need, covering the City of Indianapolis. This report identified over \$300 million of need, from maintenance activities to capital improvement projects. In 2001, the City of Indianapolis implemented a stormwater utility under City-County ordinance No. 43-2001. This ordinance became effective on June 6th, 2001. Assessments from this ordinance commenced on September 6th, 2001 to create the capital required to complete the drainage projects.



On February 1, 1998, the Indiana Department of Environmental (IDEM) issued NPDES Stormwater Discharge Permit Number INS000001 to the City of Indianapolis (City). Under the terms of the permit, the City has developed a Stormwater Management Program (SWMP) that now serves as the foundation of the NPDES permit. The goal of the SWMP is to improve the overall water quality of stormwater runoff in the City of Indianapolis and Marion County. As a result of the City receiving over 12,500 drainage complaints during the past 5 years, one of the objectives of the SWMP is to optimize stormwater system operation and maintenance practices.

The City, through the Mayor's Action Center (MAC), receives drainage complaints from citizens via their elected officials, mail, phone, neighborhood meetings, internet, etc. The complaints address problems and issues related to water quality, poor drainage, flooding, stream protection, and other environmental impacts. As one of the means to address these complaints, the City of Indianapolis's Stormwater Capital Improvement Program (CIP) was initiated. The CIP, funded under the Storm Water User Fee enacted on June 6, 2001, is a series of public works projects being undertaken to improve the quality of life in the community.



The CIP includes portions of the 12,500 originally registered complaints. All registered complaints are field investigated individually using a systematic approach in order to treat each project equally and unbiased. Assigned priorities then determine which complaints will be incorporated as projects within the most current CIP. Thus, the lower priority complaints will be addressed within future CIP's, since the complaints may not require the wide scale approach associated with a current CIP project.

The CIP currently includes approximately 145 stormwater projects within Indianapolis that are scheduled to be completed from 2004 through 2007. All incoming complaints are assigned an Initial Priority Rating (IPR) with the complaints being ranked from highest to lowest priority for implementation. The IPR, a measure determined by field reconnaissance and data collection, is based upon formulated observations and research relating to the frequency of street and property flooding, the water quality conditions within the project area, and the opportunity for cost sharing. Accordingly, the IPR scores determine which complaints need further review and, ultimately, determine

which complaints translated into projects and should be incorporated into the current Capital Improvement Program (CIP). Typically, an IPR rating from 0-90 is a low priority, 91-120 is a medium priority, and anything over 120 is considered a high priority. A higher IPR will normally drive the complaint into a project, and ultimately place it on the CIP. As the CIP has begun to take shape, the need for organization has arisen so that the projects can be identified and monitored as they progress.

1.3 Overview of Approach

In order to better aid the City with the CIP, this Stormwater Capital Improvement Program was deemed necessary to organize all CIP projects into a single, concise, researchable format while presenting each project's information clearly and accurately. In addition to the Stormwater Capital Improvement Program organizing the CIP projects for the City and additional entities involved in the implementation phase of the projects, this website is intended as one means of public outreach for citizens to use in reviewing, identifying, and monitoring drainage improvement projects.



To identify the CIP projects, each project in the CIP is assigned a name that typically corresponds to the area of the project (i.e., subdivision, neighborhood, major street, stream or major drainage ditch, etc.) as well as the type of project (i.e., street drainage improvements, channel improvements, dam/levee inspections, etc.). Similarly, the projects are assigned a 7-digit number. The project number consists of 2 letters followed by 5 numbers (i.e., CH-00-000). The letters within the first two spaces identify the type of project (i.e., CH for channel improvement, LD for levee/dam improvements, and SD for street drainage improvements). The first two numbers correspond to the map number of the project. The map number is determined by the city and used to break the county into zones for quick referencing. The remaining three spaces are sequentially assigned numbers, set by the Department of Public Works.

1.4 Use Of This Website

From the search page, you can locate drainage projects by searching using the search field, or by locating the general area of the project on the map provided. Each project is shown graphically as a dot, line, or polygon area. As a general

rule, polygon areas are used to show neighborhood drainage projects, lines are used for projects that have single line features, such as channel improvements, and dots are used when the project does not have a distinctly defined coverage area.

Once you have located the specified drainage project, the information sheet(s) will provide:

- A map depicting the project location within the Indianapolis area
- A detailed map of the project boundaries
- Pictures of the project area, if available.
- A brief background statement on the project
- Project information relating to
 - Project name
 - Project number
 - Total project cost/Breakdown of costs
 - Bid Year
 - Township
 - City-County Council District
 - Watershed
 - Thoroughfare
 - Initial Priority Rating (IPR)
- Contact information
- Additional projects within the vicinity of the project

The "Other projects in vicinity" may include current and upcoming projects that are not directly associated with the drainage improvement program, including Combined Sewer Overflow (CSO), traffic, Barrett Law, etc. However, the City is coordinating its stormwater drainage projects with the overall improvement plans for the area such as street resurfacing, sidewalk installation, or sanitary sewer improvements. By combining efforts, the City intends to simplify tasks in a timely and efficient manner, minimizing the disruptions to the neighborhoods and create synergies that achieve real cost savings.

1.5 Project Identification

The Department of Public Works (DPW), along with various other City and County agencies, have many on-going engineering investigations and studies,

sometimes from separate stormwater projects, that are used to evaluate and identify new stormwater projects. Typically, new stormwater improvement projects are brought to the City's attention from one or more of the following sources:

- Needs identified by Department of Public Works (DPW) staff concerning emergency stormwater conditions and failures;
- Coordination with other improvements in the immediate area, such as Barrett Law projects.
- Elected officials convey information that has been brought to their attention by their constituents;
- Neighborhood groups that have contacted the City regarding large scale drainage concerns;
- Individual customers who have contacted:
 - Customer Service Division of DPW (317-327-1367)
 - Mayor's Action Center (MAC) (317-327-4622)
 - DPW Website (www.indygov.org/dpw)
 - Stormwater Website (www.indygov.org/stormwater)
 - Stormwater e-mail (stormwaterutility@indygov.org)



Selecting potential projects for consideration typically requires developing a consensus with several groups and agencies effected by the project. If several properties are affected, DPW will work with individual customers and the public in the design phase to determine priorities and to develop a consensus. This is also an opportunity for everyone to become more involved and aware of the problems that pertain to the project.

1.6 Initial Priority Rating

Once a project has been brought to the attention of DPW, a representative of DPW will investigate that project, in order to determine the Initial Priority Rating (IPR). The IPR is a weighted point system developed by the City of Indianapolis to give the most important problems, and the most severe cases, a higher priority. Since the funds for solving stormwater and flooding problems are extremely limited, all funds must be directed towards the higher priority

problems. The information used to calculate the Priority Rating is researched by the Department of Public Works Department Customer Service Representative, and the calculations are completed by the DPW Planning Division. The DPW Customer Service Representative gathers the information from physical evidence, citizen's comments, pictures, reports, and any other methods.

It is important to note that the Initial Priority Rating is not the overall deciding factor, only one that allows the city to quickly identify an individual project's ranking within the Stormwater Capital Improvement Program.

The property involved, in each case, is given a number according to the present hazard to the public. Some of the considerations involved in designating the Initial Priority Rating include, but are not limited to:



- The water quality impacts of the stormwater problem is considered, and given the heaviest weight. If the problem is located in the Combined Sewer Overflow (CSO) Area or a Barrett Law Area, increased priority is assessed;
- The use of the property is considered. From highest to lowest priority:
 - Flooded homes (on septic systems), flooded homes (on sanitary sewers), flooded businesses, flooded parking areas, yards and fields;
- The property is evaluated by what kind of street is involved and what level of hazard is involved to the public. A thoroughfare has a higher value than a collector or local street. The more people traveling a street and are put into a hazardous situation, the higher the priority;
- The number of properties affected by the flooding is considered, those at the complaint origin, and surrounding the area. This also considers from highest to lowest priority: homes, businesses, parking areas, yards and fields;

- Erosion control factors are also considered. From highest to lowest priority: in the street right of way, within a regulated drain, on private property;
- Another consideration is cost sharing; If the area effected is willing to contribute to the solution. The higher the percentage the residents are willing to share the overall cost of the project, the higher the number assigned.

Each property situation is given a multiplier according to the severity of the problem. How often each situation happens, the length of the erosion where erosion is involved, and the percentage of cost share available. Only one “X” is to be marked per category. If two situations exist in a category, the highest is used.

After each property situation has been multiplied by the severity rating, the subtotals are added together to create the Initial Priority Rating. Values of the Initial Priority Rating range from 33 (lowest priority) to 242 (highest priority).

1.7 Guidelines

While the City of Indianapolis and the Department of Public Works (DPW) can do much to improve stormwater conditions through the Stormwater Capital Improvement Program and other programs, it cannot realistically address all needs. As a result of this, two general guidelines have been adopted for determining the use of bond funds for the Stormwater Capital Improvement Plan.

The first guideline is, simply, dollars and cents. It is the nature of construction projects, particularly those projects dealing with complex, multi-agency issues such as stormwater control, that budgets must leave room for flexibility. All outcomes cannot be predicted. Thus, the City must budget for many possible contingencies.

In some cases, however, even when taking into account a multitude of possible contingencies, budget constraints may, simply, limit how much work is to be completed in one phase. Accordingly, many projects are phased due to their limitations. Whenever a project is spread out over time, the remaining work is given top priority when funds become available in the future.

The other major guideline is the oversight and recommendation of the Technical Advisory Committee (TAC). The City of Indianapolis, along with the Department of Public Works (DPW), works with the Technical Advisory Committee to add or delete projects from the Stormwater Capital Improvement Program, as well as help shape procedures in the program.



1.8 Coordination

By using the IPR, along with many other factors, DPW has been able to stretch the public's funds to address the most customers and the most severe problems first. Making the most of the funds available is another reason DPW coordinates stormwater drainage projects with the overall drainage plan for the area and with all other neighborhood improvements. These include street resurfacing, alley reconstruction, installation of sidewalks, utility improvements, and several others. This way certain construction costs can be prorated along with the costs of the other improvements, and a single contractor can be hired. The coordination of projects also helps to decrease the amount of time individuals and neighborhoods are inconvenienced by construction.

1.9 Maintenance Management Program

The Maintenance Operations Division of DPW maintains thoroughfares, public right-of-ways, and traffic management systems consistent with infrastructure policies established by the City. Service requests are directed through Township Coordinators who work with the citizens to maintain the City's infrastructure. The vast majority of drainage concerns that the City receives are addressed through the Maintenance Operations Division of DPW. These concerns require minimal effort in that they are typically roadside ditch, culvert cleaning or simple culvert replacement.

As the Stormwater Program expands in capacity to address a wide range of projects DPW is coordinating smaller scale stormwater projects directly with the Maintenance Operations Division. By coordinating with the Maintenance and Operations Division, DPW can effectively and continually address an expanded list of priority stormwater project of varied scale. This arrangement allows DPW to take advantage of additional scheduling opportunities Division and conserves program funding. Projects scheduled with the Division continue to include (but on a larger scale) improvements to minor infrastructure

problems such as, ditch maintenance, storm sewer inlet and pipe restoration and / or replacement, culvert replacement and others. Through this effort the Department of Public Works (DPW) continues to expand their ability to directly affect a wide range of drainage problems across the City.

1.10 GIS Integration

The City of Indianapolis utilizes a geographic information system (GIS) to store, manage, and maintain geographic data such as utilities, streets, and drainage systems. Data entered into the GIS is available to citizens via the Internet <http://imaps.indygov.org/prod/GeneralViewer/viewer.htm>.

In the near future, the CIP will be integrated with the City's GIS. This coordination will allow for faster updates in the GIS, as well as the CIP, making updated and accurate information more readily available to the public.

1.11 Storm Events

Most drainage improvements are designed to eliminate primarily the flooding that results from normal or most common rainfall events. While these types of projects are designed to, and will address the majority of rainfall events throughout any given year, the projects will not and should not be designed to address isolated storms of a very intense nature. Costs associated with design and construction as well as easement constraints prohibit the ability of every project to address every size storm event. Therefore, it is possible that some flooding may still occur in some areas after the most serious storm events.

1.12 Environmental Sensitivity



DPW continues to make maximum use of natural streams, existing pipes, channels, and other drainage facilities, instead of constructing new facilities. During the design process, DPW looks for ways to keep things as natural as possible; for example, using more grass and less concrete whenever possible. This not only cuts down on the cost of the project, but also is environmentally responsible.

Based upon the location and site conditions, either one or several stormwater Best Management Practices (BMPs) may be recommended to be installed with a drainage improvement project. A stormwater BMP is a technique, measure or structural control that is used for a given set of conditions to manage the quantity and improve the quality of stormwater runoff efficiently and effectively.

The BMPs can either be structural BMPs engineered and constructed to improve the quality and/or control the quantity of runoff (i.e. detention ponds, constructed wetlands, etc.), or non-structural BMPs that are institutional, education or pollution prevention practices designed to limit the generation of storm water runoff or reduce the amounts of pollutants contained in the runoff. Each type has certain limitations based on drainage area served, available land space, cost, pollutant removal efficiency, as well as a variety of site-specific factors such as soil types, slopes, depth of groundwater table, etc. Careful consideration of these factors is necessary in order to select the appropriate BMP or group of BMPs for a particular location.

1.13 Public Outreach

Public involvement is essential to the success of the stormwater program. It is important to involve neighborhood organizations and other groups in water quality and drainage projects, and provide education on the maintenance of the existing stormwater infrastructure. Outreach is available through various means including environmental publications, the stormwater website, and ongoing public meetings.

Public input helps identify areas for stormwater projects. Through public participation, the City becomes aware of drainage concerns throughout the county. Once a problem is identified, the potential project is moved into the planning phase. During this phase, surveys are sent to residents of the area in order to help recognize specific problem areas, as well as the severity of the problem. Once the project has progressed into design phase, a public meeting is held to discuss the proposed solution, and gather public opinion on the project. Another public meeting is held prior to construction to educate and discuss the proposed work. Therefore, public participation is vital to the success of projects.

1.14 Infrastructure Inventory

The stormwater infrastructure consists of drainage outfalls, flood structures (levees and dams), piped systems, and open systems. According to information obtained from the City of Indianapolis' GIS database, there are:

- 4,368 drainage structure outfalls
- 78 miles of flood structures (levees, dams)
- 1,510 miles of piped systems
- 245 City maintained Lift Stations
- 1,716 miles of open channel logged in Marion County.

The GIS is continuously updated as changes to the stormwater infrastructure are completed.

1.15 Conveyance System Analysis

Parts of the existing conveyance system may be outdated. As part of the ongoing masterplan reporting, the conveyance system will be analyzed as projects are completed. The analysis will help determine the effects the new stormwater projects are having on the conveyance of stormwater throughout the City.

1.16 Looking Forward

The information in this book was compiled for use in identifying and monitoring the Stormwater Capital Improvement Plan. As projects progress through their life cycle, the project information sheets will be updated and provided for review and information. The Stormwater Capital Improvement Plan is a living document, thus projects will be added, removed, modified, etc. to it over time. The goal is to make this web site as up to date as possible, as a quick and informative reference for the residents of Marion County to stay informed on drainage projects occurring in their area.

